From: "Stoddard, Jamey" <Stoddard.Jamey@epa.gov>
To: "Hood, Lynne" <Hood.Lynne@epa.gov>
Date: 7/11/2017 11:54:42 AM
Subject: RE: Midas - NPDES Pre-Application Meeting Summary and Questions
Attachments: 20170622_BC_Midas - NPDES Pre-App Meeting_FINAL_06_22_2017.pdf

Ok, sounds good.

Here is Midas' NPDES presentation too.

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From: Hood, Lynne
Sent: Tuesday, July 11, 2017 11:49 AM
To: Stoddard, Jamey ; Godsey, Cindi
Cc: Kusnierz, Lisa ; McGrath, Patricia
Subject: RE: Midas - NPDES Pre-Application Meeting Summary and Questions

Hi Jamey, thanks for coordinating and I'd be happy to participate in a call to discuss.

Thanks!

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From: Stoddard, Jamey
Sent: Tuesday, July 11, 2017 11:42 AM
To: Godsey, Cindi <Godsey.Cindi@epa.gov>; Hood, Lynne <Hood.Lynne@epa.gov>
Cc: Kusnierz, Lisa <kusnierz.lisa@epa.gov>; McGrath, Patricia <mcgrath.patricia@epa.gov>
Subject: FW: Midas - NPDES Pre-Application Meeting Summary and Questions
Importance: High

Hi guys-

See Brown and Caldwell's (Midas contractor) email below with their summary of the NPDES pre-application meeting last month. It looks like they have many questions for us re: Midas' application and the types of data they should be generating to support that effort. Please review and I will look for a time to get together and discuss how we want to respond. Thanks.

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From: Todd Glindeman [mailto:TGlindeman@brwncald.com]
Sent: Tuesday, July 11, 2017 7:07 AM
To: Stoddard, Jamey <Stoddard.Jamey@epa.gov>
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Subject: Midas - NPDES Pre-Application Meeting Summary and Questions
Importance: High

Jamey,

I have attached the draft meeting summary notes from the June 22, 2017 Pre-Application Meeting. Please review and let me know if you and your team have any edits/comments.

During our meeting on June 22, 2017, we discussed different modeling approaches during the NPDES permitting process and asked the USEPA for feedback. It was determined that it would be best for Midas Gold to develop a list of specific questions that the USEPA and their modeler could review in order to issue a proper response. Our team has worked to develop the following set of questions:

1. There is a vast array of models available that can be independently applied to watershed hydrology, stream hydrology, groundwater hydrology, mine pit limnology, geochemistry, surface water chemistry, and water treatment. Some of these include mechanisms to link the models directly to one another, while others require manual steps to use output from one as input for another. Midas is also aware of several dynamic modeling options for mining programs that allow for consideration of most or all of these issues within one model platform, often with the ability to include probability analysis and address uncertainty. These include the Crystal Ball spreadsheet add-in, Goldsim, STELLA and Vensim. As mentioned during our meeting, Midas has a very detailed spreadsheet water balance it has developed for mine planning purposes, but which does not address several needs for NPDES review. Linking that spreadsheet to a modeling platform like Goldsim could allow for continued use of the spreadsheet for mine planning, as well as the expansion of the model to address multiple other aspects of the mine for NPDES purposes. Midas would like to know EPA's experience, and level of comfort, with any or all of these applications. If EPA has seen other software products EPA used successfully for comprehensive water modeling of a mine, we would certainly be interested in knowing that as well.

2. As stated above in item No. 1, Midas Gold's consultants have developed a site-wide water balance model that computes groundwater inflows, contact water production (including snowmelt), dewatering, tailings reclaim, and other flows using a monthly time step throughout the life of the project. The model functions with a long-term precipitation series (~100+ years of monthly values), or simply average monthly precipitation. Are the resulting monthly yields / monthly averaged flows acceptable for presentation with the NPDES application?

3. Recognizing that peak flows are required for the design of spillways and channels, and daily (approximately) yields useful for short-term storage and pumping estimates, Midas Gold had a consultant compute peak runoff rates and volumes from a variety of design storms, for both rainfall runoff and rain-on-snow conditions, using NRCS methods. As is often the case, the results (particularly unit peak

3. discharge) proved to be extremely conservative as compared to flows measured over a 35-year record at the USGS gage located at the project site. We hypothesize this is primarily due to a combination of a short travel times with use of the NRCS Type 2 rainfall distribution. Secondarily, intentionally conservative assumptions of ripe snowpack (rain-on-snow), high temperatures (for rain-on-snow), and antecedent moisture condition 2 (for summer storms) contribute to the evident conservatism. As Idaho has not yet had a NOAA Atlas 14 update; and long-term, short-time step precipitation data are lacking in mountainous areas; what other design rainfall temporal distributions and/or storm flow methodologies are acceptable or recommended for determination of peak flows and/or development of unit hydrograph models?

4. What is an example of an acceptable methodology for pairing flows (average month, peak, or maximum month) with water quality – particularly for unusually large peak flows such as those discussed in item No. 3 above?

5. What is the preferred method for modeling wet-up, seepage, and runoff production from a dynamically-changing system such as a bottom-up development rock storage facility that is continuously added to during its operational life, or a pit which is continuously deepened?

6. During our meeting, EPA stated that the proposed tunnel for the East Fork South Fork Salmon River can be considered a diversion similar to a temporary surface conveyance, but would require assurance that water quality and quantity wouldn't be adversely affected. Midas wonders whether EPA would prefer such assurance in the form of drilling, geochemistry testing and/or groundwater modeling prior to tunnel construction, or through a commitment to grout (or otherwise block, capture or contain) any significant fractures or seeps encountered during construction of the tunnel.

We look forward to hearing back from you and your team. Please let me know if you have any questions. Thank you

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